

**ENVIRONMENTAL ECONOMICS**

Lecture in the Master's program in Economics  
Course language: English  
Prerequisites: E601-603 or equivalent  
Examination: Written final exam, 120 min; presentation  
ECTS-Credits: 9.5

Instructor: Prof. Ulrich Wagner, PhD  
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Class dates: Wednesday, 17:15 a.m. – 18:45 a.m., SO 133  
Thursday, 8:30 a.m. – 10:00 a.m., P 043

Exam date: Thursday, June 7, 2018

Guest Lecturers: Dr. Andreas Gerster, RWI Essen  
Dr. Wolfgang Habla, ZEW & University of Mannheim  
Dr. Miguel Tovar, ZEW Mannheim

**Syllabus****Course description:**

This course is an introduction to the field of environmental economics at the graduate level. The first part of the course presents the economic theory of environmental policy. Based on the theory of externalities, a broad range of instruments for environmental policy will be analyzed from an economic point-of-view. The second part of the course extends the discussion to include international aspects of environmental regulation. The third part of the course deals with empirical methods for the valuation of environmental quality, which is required for cost-benefit-analysis and in the implementation of environmental policies. The fourth part of the class integrates behavioral aspects into environmental economics.

Expected Competences acquired after completion of the module:

- Ability to formulate and solve problems in environmental regulation using advanced economic theory and mathematical techniques.
- Ability to estimate willingness-to-pay for environmental quality using statistical methods.
- Understanding of strategic incentives in international negotiations over environmental problems.

Requirements for the assignment of ECTS-credits and grades:

Final exam (120 min) (70%) and presentation of an article (30%)

Go to ILIAS to register your presentation date and to see a list of papers.

Principal textbooks

- [PR] Phaneuf, Daniel J. and Till Requate. A course in environmental economics. Cambridge University Press.
- [BM] Bockstael, Nancy E. and Kenneth E. McConnell. Environmental and Resource Valuation with Revealed Preferences. A Theoretical Guide to Empirical Models. Springer. *Available through University at <https://doi.org/10.1007/978-1-4020-5318-4>*

Additional textbooks

- [BO] Baumol, William J. and Wallace E. Oates, The theory of environmental policy. Cambridge University Press.
- [K] Kolstad, Charles: Intermediate Environmental Economics. Oxford University Press. International 2nd Edition.
- [T] Tietenberg, Tom: Environmental and Natural Resource Economics. Addison Wesley. *Any edition will do, chapter numbers below refer to the sixth edition.*

## **Course Program and Readings**

*N.B. Additional readings are marked with an asterisk (\*).*

### **1. Theory of Environmental Policy**

#### A. Instruments

[PR] Ch. 3

[Goulder, L. and I. Parry \(2008\). Instrument choice in Environmental Policy. \*Review of Environmental Economics and Policy\*, 2\(2\): 152-174.](#)

[Martin, R., L.B. de Preux, and U.J. Wagner \(2014\). The Impact of a Carbon Tax on Manufacturing: Evidence from Microdata. \*Journal of Public Economics\*, 117:1-14.](#)

#### B. Uncertainty

[PR] Ch. 4

[Weitzman, M. \(1973\). Prices vs. Quantities. \*Review of Economic Studies\*, 41\(4\): 477-491.](#)

#### C. Pre-existing distortions

[PR] Ch. 7

[Goulder, L. \(1994\). Environmental Taxation and the "Double Dividend:" A Reader's Guide. NBER Working Paper No. 4896.](#)

### **2. Emissions trading in theory and practice**

#### A. Institutional topics

[PR] Ch. 8

[Fowlie, M., Holland, S. P., and Mansur, E. \(2012\). What do emissions markets deliver and to whom? Evidence from Southern California's NO<sub>x</sub> trading program. \*American Economic Review\*, 102\(2\): 965-993.](#)

[Curtis Carlson & Dallas Burtraw & Maureen Cropper & Karen L. Palmer, 2000. Sulfur Dioxide Control by Electric Utilities: What Are the Gains from Trade? \*Journal of Political Economy\*, 108\(6\): 1292-1326.](#)

[Novan, K. \(2017\). Overlapping Environmental Policies and the Impact on Pollution. \*Journal of the Association of Environmental and Resource Economists\*, 4\(S1\): S153-S199. <https://doi.org/10.1086/691994>](#)

[Muller, N.Z. and R. Mendelsohn \(2009\). Efficient Pollution Regulation: Getting the Prices Right. \*American Economic Review\*, 99\(5\): 1714-1739.](#)

## B. The European Union Emissions Trading System (EU ETS)

Ellerman, A.D., Marcantonini, C. and A. Zaklan (2016). The European Union Emissions Trading System: Ten Years and Counting. *Review of Environmental Economics and Policy*, 10 (1): 89-107.

[Martin, R., M. Muûls and U.J. Wagner \(2016\). The Impact of the European Union Emissions Trading Scheme on Regulated Firms: What Is the Evidence after Ten Years? \*Review of Environmental Economics and Policy\*, 10 \(1\): 129-148.](#)

[Calel, R., and Dechezleprêtre, A. \(2016\). Environmental policy and directed technological change: Evidence from the European carbon market. \*Review of Economics and Statistics\*, 98\(1\): 173-191.](#)

[Bushnell, James B., Howard Chong & Erin T. Mansur \(2013\). Profiting from Regulation: Evidence from the European Carbon Market. \*American Economic Journal: Economic Policy\*, 5\(4\): 78-106.](#)

### 3. Welfare and distributional effects of environmental taxes

Banks, J., Blundell, R., Lewbel, A. (1997). Quadratic Engel curves and consumer demand, *Review of Economic and Statistics*, 79: 527–539

Böhringer C., Lands F., Tovar Reanos M.A., (2017). Economic Impacts of Renewable Energy Promotion in Germany, *The Energy Journal*, 38.

Deaton A (2016), Measuring and Understanding Behavior, Welfare, and Poverty, *American Economic Review*, 106(6): 1221-1243

King, M.A., (1983), Welfare analysis of tax reforms using household data. *Journal of Public Economics*, 21, 183–214.

Lewbel, A., and Pendakur K., (2009), Tricks with Hicks: The EASI Demand System." *American Economic Review*, 99(3): 827-63.

Tovar Reanos M.A and Wolfing N. (2018), Household energy prices and inequality: Evidence from German microdata based on the EASI demand system, *Energy Economics*, 70, 84–97

Williams III R.C. (2016). Environmental Taxation. *NBER Working Paper w22303*.

## 5. International Aspects of Environmental Regulation

[PR] Ch. 12

[Barrett, S. \(2003\). Environment and Statecraft. Oxford University Press. Oxford, UK. Chapters 3.1-3.9, 3.14, 3.20](#)

[Martin, R., M. Muûls, L.B. de Preux, and U.J. Wagner \(2014\). Industry Compensation Under Relocation Risk: A Firm-level Analysis of the EU Emissions Trading Scheme. \*American Economic Review\*, 104\(8\): 2482-2508.](#)

[Wagner, U.J. \(2016\). Estimating Strategic Models of International Treaty Formation. \*Review of Economic Studies\*, 83\(4\): 1741-1778.](#)

## 6. The “Green Paradox”

[Harstad, B. \(2012\). Buy Coal! A Case for Supply-Side Environmental Policy, \*Journal of Political Economy\* 120\(1\): 77-115.](#)

[Jensen, S., Mohlin, K., Pittel, K., and T. Sterner \(2015\). An Introduction to the Green Paradox: The Unintended Consequences of Climate Policies. \*Review of Environmental Economics and Policy\* 9\(2\): 246-265.](#)

[Sinn, H.-W. \(2008\). Public Policies Against Global Warming: A Supply Side Approach. \*International Tax and Public Finance\* 15: 360-394.](#)

[Van der Ploeg, R., and C. Withagen \(2015\). Global Warming and the Green Paradox: A Review of Adverse Effects of Climate Policies. \*Review of Environmental Economics and Policy\* 9\(2\): 285-303.](#)

## 7. Valuation

A. Welfare measurement and revealed preferences

[PR] Ch. 14 & 15, [BM] Ch. 2 & 3

B. Hedonic pricing of environmental (dis-)amenities

[PR] Ch. 18

[Abbott, J. & H. Klaiber \(2013\). The value of water as an urban club good: a matching approach to community-provided lakes. \*Journal of Environmental Economics and Management\*, 65\(2\).](#)

[Greenstone, M. and J. Gallagher \(2008\). Does Hazardous Waste Matter? Evidence from the Housing Market and the Superfund Program. \*Quarterly Journal of Economics\*, 123 \(3\): 951–1003.](#)

[Gamper-Rabindran, S. and Ch. Timmins \(2011\). Does cleanup of hazardous waste sites raise housing values? Evidence of spatially localized benefits. \*Journal of Environmental Economics and Management\*, 65\(3\): 345-360.](#)

C. Wage hedonics and the value of a statistical life

[PR] Ch. 20

[Kniesner, T.J., K. Viscusi, C. Woock, and JP Ziliak \(2012\). The Value of a Statistical Life: Evidence from Panel Data. \*The Review of Economics and Statistics\*, 94\(1\): 74-87.](#)

[DeLeire, T., Khan, S. and Timmins, C. \(2013\), Roy Model Sorting and Nonrandom Selection in the Valuation of a Statistical Life. \*International Economic Review\*, 54: 279–306.](#)

D. Travel cost method

[PR] Ch. 17

E. Valuation with stated preferences

[PR] Ch. 19, [K] Ch. 8-10.

[Portney, P.R. \(1994\). The Contingent Valuation Debate: Why Economists Should Care. \*Journal of Economic Perspectives\*, 8: 3-17.](#)

## **8. Behavioral environmental economics**

A. Introduction to behavioral public finance:

Congdon, W., J. Kling, and S. Mullainathan (2011), Policy and Choice – Public Finance Through the Lens of Behavioral Economics, Brookings Institution Press.

Mullainathan, S., Schwartzstein, J., Congdon W.J. (2012), Reduced-Form Approach to Behavioral Public Finance, *The Annual Review of Economics*, 4:17.1–17.30.

Farhi, E., and Gabaix, X. (2017), Optimal Taxation with Behavioral Agents, *NBER Working Paper* No. 21524.

B. Libertarian paternalism

Camerer, C., S. Issacharoff, G. Loewenstein, T. O'Donoghue, and M. Rabin (2003), Regulation for Conservatives: Behavioral Economics and the Case for Asymmetric Paternalism. *University of Pennsylvania Law Review*, 151: 1211–1254.

Thaler, R. H., and C. R. Sunstein. (2003), Libertarian Paternalism. *American Economic Review*, 93 (2): 175-179.

C. Applications of behavioral public finance in environmental economics

Allcott, H., S. Mullainathan, D. Taubinsky (2014), Energy Policy with Externalities and Internalities. *Journal of Public Economics* 112: 72–88.

Allcott, H., D. Taubinsky (2015), Evaluating Behaviorally Motivated Policy: Experimental Evidence from the Lightbulb Market. *American Economic Review* 105 (8): 2501–2538.